Python Question Bank

Theory Questions:

Note: There will be 4 questions in theory paper of 5 marks each and 20 MCQs of 1 marks each.

1) Explain the following ways to print formatted output with the help of examples:
   i) %
   ii) format
   iii) f-string

2) Explain different mutable and immutable data types with examples.

3) Explain arithmetic operators and logical operators in Python. Write a Python program to demonstrate arithmetic and logical operators.

4) Explain different conditional statements in Python. Write a program to demonstrate the working of if else statement.

5) Differentiate between while and for loop. Provide syntax and examples of each.

6) Explain the use of the break, continue and pass statements with examples.

7) Explain how to define a function in Python with the help of an example.

8) Explain positional and keyword arguments in Python functions with the help of example.

9) Explain how to define a function in Python with the help of an example. Explain variable length arguments in Python function with the help of example.

10) Explain different ways to import a module in Python. Explain the following functions of random module with the help of an example:
   i) random()
   ii) randint()
   iii) choice()
   iv) shuffle()

11) WAP to demonstrate following functions in math module:
   i) ceil
   ii) trunc
   iii) floor
   iv) factorial
   v) fabs
   vi) pow
   vii) fmod
   viii) fsum
   ix) sqrt
   x) prod

12) Explain string data type. Explain the following functions:
   i) lower()
   ii) upper()
   iii) title()
   iv) isupper()
   v) count()

13) Explain forward indexing and backward indexing in string with the help of an example. Describe Python's string slicing feature with examples.

14) Explain List. Explain different ways to create a list in Python. Explain different ways to remove elements from list with the help of an example program.

15) What is a list comprehension? Write a program using list comprehension that generates a list of squares for numbers from 1 to 10.

16) Explain dictionary. Explain different ways to create a dictionary in Python. Explain how to retrieve all the keys, values, and key value pairs in the dictionary.

17) Explain set. How to create a set. Write a program to demonstrate the use of set operations (union, intersection, difference).

18) Explain tuple. How to create an empty tuple and a singleton tuple. Explain similarities and dissimilarities between list and tuple.

19) Explain array in Python. Explain the following with the help of an example:
i) how to create array
ii) access elements in array
iii) add elements in array.
iv) Modify elements in array

20) Explain class and object. Write a program to create a class and object.

21) Explain constructor. Explain the concept of default constructor and parameterized constructor with the help of examples.

22) Explain different types of variables that can be defined in a class in Python. Explain different ways to create an instance variable in Python in a class.

23) Explain inheritance. Explain hierarchical inheritance with the help of example program.

24) Explain single inheritance and multilevel inheritance with the help of example programs

25) Explain different modes in which Python file can be opened. Write a program to write
"Have a nice day" in a text file and read it

26) Explain the following ways to read content of text file in Python with the help of an example:
i) read()
ii) read(n)
iii) readline()
iv) readlines()

27) Explain the following with respect to exception handling. Also, write a program to exhibit these concepts:
i) try
ii) except
iii) finally

28) What is exception handling in Python? Write a program that demonstrates how to handle an exception.

29) What is lambda in Python? Explain the rules for writing lambda along with it's syntax and example.

30) Explain the following widgets of tkinter with the help of example program:
i) Label
ii) Entry
iii) Button

Practical Questions:

Note: There will be 4 questions in practical exam paper of 10 marks each. Student need to attempt all four questions.

1) WAP to demonstrate arithmetic operators.

2) WAP to find greatest number among three numbers.

3) WAP to add numbers from 5 to 15 using for loop.

4) WAP to find factorial of a number.

5) WAP to WAP to print the following patterns:

```
*
* *
* * *
* * * *
* * * * *
```

6) WAP to calculate sum and average of a given array: arr=('i',[1,2,3,4,5]).

7) Create a function to check whether number is prime or not.

8) Create a recursive function to print Fibonacci series upto 10 terms.

9) WAP to check whether the string is palindrome or not.

10) WAP to create a user defined function to calculate sum of variable number of arguments using the concept of variable length argument in function.

11) Write a Python program to remove duplicates from a list.

12) WAP to calculate square of a number from 1 to 10 using list comprehension.

13) Write a Python program to compute the element-wise sum of given tuples.
Original : (1, 2, 3, 4) (3, 5, 2, 1) (2, 2, 3, 1)
Element-wise sum of the said tuples: (6, 9, 8, 6)

14) WAP to get only unique items from two sets

15) Use dictionary comprehension to create a dictionary to store only key value pairs having even age.

```
original_dict = {'jack': 38, 'michael': 48, 'guido': 57, 'john': 33}
```

16) WAP to remove spaces from given string:

"Python is very easy"

17) WAP to input principle_amount, rate, time from the user. Calculate simple interest and print the value of simple Interest using format function.

18) Write a Python class named Circle. Declare an instance variable, radius and two methods that will compute the area and the perimeter of a circle.

19) Create a person class with:
   i) two instance variable: name, age.
   ii) Create a parameterized constructor

   Create a student class. Inherit person class in Student class.
   Student class have:
   i) instance variable: rollno and stream.
   ii) Create a parameterized constructor to initialize all instance variables of student class as well as Person class
   iii) Instance method: display() to print name, age, rollno and stream

Create an object of Student class and call display method

20) WAP to Count the Number of Words in a Text File

21) WAP to handle ZeroDivisionError gracefully using exception handling.

22) WAP to demonstrate how to use lambda in map() function.

23) WAP to demonstrate how to use lambda in filter() function.

24) WAP to demonstrate how to define class method and static method in a class.

25) Create a GUI application to add two numbers using Label, Entry and Button widgets.